UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/585,714	05/31/2000	Stephen P. Zadesky	004860.P2452	3805

7590 09/30/2002

Erica W Kuo
Blakely Sokoloff Taylor & Zafman LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

EXAMINER
SHIPSIDES, GEOFFREY P

ART UNIT	PAPER NUMBER
1732	

DATE MAILED: 09/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/585,714	ZADESKY ET AL.	
	Examiner	Art Unit	
	Geoffrey P. Shipsides	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 July 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 5-7, 10, 11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,262, 886 (DiFonzo et al.) in view of U.S. Patent No. 4,550,058 (Collins et al.) and admitted prior art (Admission).

DiFonzo et al. teaches a translucent protective covering for a computer housing (title). DiFonzo et al. teaches, "housings 102, 104 may be made of lightweight, translucent and hardened plastic materials. A preferred plastic material is sold under the trade name GE® Polycarbonate ML7408" (Column 3, lines 35-39). DiFonzo et al. further teaches "a translucent elastomer covering one or more parts of the computer housing on which user hands or fingers frequently make contact" (Column 2, lines 45-49). DiFonzo et al. teaches that the translucent elastomer is a material having similar properties to natural rubber (Column 3, lines 59-60).

With regard to claims 1, 6, and 7, DiFonzo et al. does not teach the presence of a protective layer between the polycarbonate layer and the rubber layer of the computer housing.

Collins et al., however, teaches a soft coated shaped polycarbonate article exhibiting improved resistance of the polycarbonate substrate to degradation by the plasticizers contained in the relatively soft top coat. Collins et al. further teaches a shaped polycarbonate substrate, "a protective intermediate layer disposed on said polycarbonate substrate comprised of at least one ply of a resinous material exhibiting plasticizer barrier properties, thermoformability, heat resistance, and compartibility [sic] with the underlying polycarbonate", and a relatively soft plasticized top coat. (Abstract) Collins et al. teaches that the soft layer can include "a rubber modified styrene resin" (Column 10, line 2). Collins et al. also teaches that the intermediate layer must be sufficiently thick to function as an effective barrier layer (Column 5, lines 19-21).

It is well known in the polymer arts that most low cost rubber like materials include the presence of plasticizers. It would have been obvious to one having ordinary skill in the art at the time of invention to dispose a protective layer at taught by Collins in between the polycarbonate layer of DiFonzo et al. and the rubber like material of DiFonzo et al. in order to protect the polycarbonate layer from the possible diffusion of plasticizers from the rubber like material into the polycarbonate material in the computer housing as taught by DiFonzo et al. It is further noted that a computer housing constitutes a casing.

DiFonzo et al. further does not teach how the computer housing is formed. It is notoriously well known to form plastic articles by molding. Admission teaches that rubber molded over plastic has been known for some time (Page 1, line 4 of the instant specification). It would have been obvious to one having ordinary skill in the art at the

time of invention to form the layered construction of DiFonzo et al. with the intermediate protective layer as taught by Collins et al. by the notoriously well known process of molding (as taught by Admission).

With regard to claim 2, DiFonzo et al. teaches a plastic piece made of polycarbonate.

With regard to claim 5, DiFonzo et al. teaches that this plastic piece is preferably translucent (Column 3, line 37).

With regard to claim 10, Collins et al. also teaches that the intermediate layer must be sufficiently thick to function as an effective barrier layer (Column 5, lines 19-21). It would have been obvious to one having ordinary skill in the art at the time of invention to make the barrier layer thick enough to prevent the diffusion of plasticizers (attack) from the rubber like layer to the polycarbonate layer in order to prevent the problems of diffused plasticizers as taught by Collins et al.

With regard to claim 11, DiFonzo et al. teaches a computer casing with both translucent polycarbonate and rubber-like layers. It would have been further obvious to one having ordinary skill in the art at the time of invention to when modifying DiFonzo et al. by providing an intermediate layer as taught by Collins et al. to also make the intermediate layer transparent so to not alter the appearance of the computer casing as taught by DiFonzo et al and still protect the polycarbonate layer.

With regard to claim 14, DiFonzo et al. teaches a translucent rubber like layer (Column 2, line 28).

3. Claims 8, 9, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,262, 886 (DiFonzo et al.) in view of U.S. Patent No. 4,550,058 (Collins et al.) and admitted prior art (Admission) as applied to claims 1, 2, 5-7, 10, 11, and 14 above, and further in view of U.S. Patent No. 6,258,443-B1 (Nilsen et al.), U.S. Patent No. 4,543,291 (Giles, Jr. et al.), U.S. Patent No. 5,334,450 (Zabrocki et al.), U.S. Patent No. 3,496,000 (Hull et al.), and U.S. Patent No. 6,007,902 (Adur et al.).

With regard to claims 8, 9, 12, and 13, Collins et al. does not teach the use of polyurethane as an intermediate protective layer nor does Collins et al. teach the application of intermediate protective layer in liquid form under ambient conditions to a first plastic piece.

Nilsen et al. teaches that the adhesion between the body layer and the land layer or cube-corner elements can be improved by the use of a tie layer such as aliphatic polyurethane (Column 15, lines 43-55). Nilsen et al. teaches that the cube-corner elements are made of polycarbonate (Column 15, lines 43-44).

Giles, Jr. et al. teaches that multilayer compositions have been utilized for many years and that tie layers are known to be used to join incompatible layers (Column 1, lines 5-58). Giles, Jr. et al. further teaches the positive qualities of polycarbonate (Column 1, lines 12-14).

Zabrocki et al. teaches a weatherable film that uses a tie layer to connect a weatherable layer comprising AES (acrylonitrile-ethylene/propylene rubber-styrene), a

rubber, to a third layer (Abstract). Zabrocki et al. further teaches that the intermediate tie layer may be made of polyurethane adhesive (Column 4, lines 59-60).

Hull et al. teaches a method of producing artificial leather (title) with layers of plastic materials. Hull et al. teaches that polyurethane may be used as the tie layer material (Column 2, lines 5-6).

Adur et al. also teaches the use of a tie layer applied to a substrate prior to the application of a second material in order to form a better-connected composite structure (Figure 4).

It is further well known in the art that polyurethane is formed from liquid precursors (usually an isocyanate component and a polyol component) that are reacted and cured at ambient conditions to form polyurethane. It is further well known in the art to react and cure the liquid precursors of polyurethane against a preform to create a well-connected polyurethane and preform composite.

It is clear from the prior art references of Collins et al., Nilsen et al., Giles, Jr. et al., Zabrocki et al., Hull et al., and Adur et al. that it is well known in the art to form intermediate tie layers between materials, especially incompatible materials, in order to form a better connected composite structure and a protected substrate layer. Collins et al., while not teaching the use of polyurethane as an intermediate layer, does not teach away from the use of polyurethane as an acceptable intermediate layer (Table 1). It would have been obvious to one having ordinary skill in the art at the time of invention to modify the teachings of Collins et al. of disposing a protective intermediate layer between polycarbonate and relative soft plasticized top coat by applying a layer of

polyurethane to the substrate as the protective layer (a tie layer) between the plastic and rubber layers in order to create a better connected composite structure and a protected layer of polycarbonate. One having ordinary skill in the art at the time of invention would have been motivated by the teachings of Nilsen et al. and Zabrocki et al. to test out polyurethane as a suitable intermediate layer as Collins et al. tested out a series of different intermediate layers to find the most suitable protective layers in order to find a possible less expensive manner to protect polycarbonate and to produce protected polycarbonate in a more efficient less expensive manner. It would have been further obvious to one having ordinary skill in the art at the time of invention to form a protected layer of polyurethane by coating the polycarbonate as taught by DiFonzo et al. with a layer of liquid precursors of polyurethane and to react and cure those precursors to form a well connected layer of polyurethane as is well known in the art to the polycarbonate prior to the overmolding of the polycarbonate with rubber as taught by Admission in order to protect the polycarbonate as taught by DiFonzo from degradation as taught by Collins et al.

4. Claims 3, 4, 15-37, rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,262, 886 (DiFonzo et al.) in view of U.S. Patent No. 4,550,058 (Collins et al.) and admitted prior art (Admission) as applied to claims 1, 2, 5-7, 10, 11, and 14 above, and further in view of U.S. Patent No. 6,258,443-B1 (Nilsen et al.), U.S. Patent No. 4,543,291 (Giles, Jr. et al.), U.S. Patent No. 5,334,450 (Zabrocki et al.), U.S. Patent No. 3,496,000 (Hull et al.), and U.S. Patent No. 6,007,902 (Adur et al.) as

applied to claims 8, 9, 12, and 13 above, and further in view of U.S. Patent No. 5,856,371 (Grimm et al.) and U.S. Patent No. 6,221,436-B1 (Perry et al.).

With regards to claims 3, 4, 15-24, 28, 33, and 37, Grimm et al. teaches the production of a sandwich structure by molding polyurethane against PMMA. Grimm et al. further teaches, "In order to obtain this outstanding adhesion it is sufficient to clean the PMMA surface to be coated with a rag soaked in n-ethanol so that it is free from grease and dust." (Column 4, lines 38-40)

Perry et al. teaches a coating method involving substrate cleaning (title). Perry et al. teaches that substrates are generally cleaned prior to coating (Column 1, lines 18-22). Perry et al. teaches the use of alcohols to clean substrates (Column 2, line 25) and teaches the drying of the substrate after cleaning by blowing air onto the substrate (Column 3, lines 40-41).

It is further well known in the art to clean substrates prior to connecting the substrate to second material with numerous solvents and cleaners and to dry the substrate after cleaning to ensure no impurities or residual cleaning materials interfere with the bonding between the substrate and the second material. It is further well known in the art of molding to dry a material by many methods including the use of heat drying in an oven or using compressed air to dry a material by increased evaporation rates.

It would have been obvious to one having ordinary skill in the art at the time of invention to clean and dry the polycarbonate substrate of DiFonzo et al. as taught by Grimm et al. and Perry et al. prior to disposing the intermediate layer as taught by

Collins et al. on to the polycarbonate substrate in order to ensure good adhesion of the intermediate layer. It would have been further obvious to clean the polycarbonate with ethanol, another alcohol solvent, or any other cleaner as taught by Grimm et al., Perry et al., and is well known in the art in order to dissolve any impurities and allow for a quick drying time. It would have been further obvious to one having ordinary skill in the art at the time of invention to dry by any of the well known means such as using compressed air or an oven to heat dry the substrate in order to quickly dry the substrate.

With regard to claims 25-27, it is notoriously well known in the art of molding that isocyanate and polyol components are used to produce polyurethane when reacted and cured. It is further well known in the art of molding to mix these precursors in a number of ratios ranging from approximate equal amounts of each precursor to having a much higher amount of either precursor. It would have been obvious to one having ordinary skill in the art at the time of invention to use an isocyanate component and a polyol component to produce polyurethane to form a coating of polyurethane as a protective coating as taught by Collins et al. on a layer of polycarbonate as taught by DiFonzo et al. prior to overmolding the polycarbonate with rubber as taught by Admission in order to form a protected structure as taught by DiFonzo et al. that has a well connected layer of polyurethane on the polycarbonate. It would have been further obvious to one having ordinary skill in the art to determine the exact ratios of the liquid precursors through routine experimentation to determine the ratios the provide the best protection for the

lowest cost and would be dependent on a host of unclaimed variables including the plasticizers present in the rubber layer, the thickness of the intermediate layer, etc.

With regard to claims 29 and 30, it is well known in the art that ambient conditions are normal room temperature conditions and these conditions range at about 25 degrees Celsius and at about 80% humidity, and it is further well known in the art to use ambient conditions in the production of polyurethane molded products. It would have been obvious to one having ordinary skill in the art at the time of invention to use these conditions in this process in order to avoid the added expense and discomfort to workers of controlling the environment of a production facility in non-ambient conditions.

With regards to claims 31 and 32, Collins et al. teaches that the intermediate layer must be thick enough to act as an effective protective barrier (Column 5, lines 19-21). It is well known in the art that different materials would have different properties. It would have been obvious to determine the thickness required for a layer of polyurethane to act as the barrier layer to protect polycarbonate through routine experimentation to find the thickness that provides adequate protective properties while ensuring the lowest cost for producing the part as possible.

With regard to claims 34-36, it is well known in the art to cure at an elevated temperature for a specific amount of time. It would have been obvious to one having ordinary skill in the art at the time of invention to cure the polyurethane at an elevated temperature for a specific period of time. It is well known in the art that the time and temperature would vary in amounts required dependent on a host of variables including the exact composition of the components and the desired amount of cross linking. It

would have been obvious to one having ordinary skill in the art at the time of invention to determine the temperature and time of curing though routine experimentation to find the conditions that yield the best protective surface.

Response to Arguments

5. Applicant's arguments with respect to claims 1-37 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey P. Shipsides whose telephone number is 703-306-0311. The examiner can normally be reached on Monday - Friday 9 AM till 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jan H Silbaugh can be reached on 703-308-3829. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Geoffrey P. Shipsides/gps
September 23, 2002

JAN H. SILBAUGH
SUPERVISORY PATENT EXAMINER
ART UNIT 1732

09/25/02